

15 APR 64
Declass Review by NGA.

MEMORANDUM FOR: Director, National Photographic Interpretation Center

SUBJECT : Research and Development Project Approval Request for Research in Vision and Related Areas

REFERENCE : Chief, Administrative Staff, O/DDI, Memorandum dated 4 February 1964: Approval of Research and Development Activities

In accordance with the authority delegated in paragraph 3. of the reference, it is requested that the reports on research in vision and related areas as outlined in attachment "A" be approved. The cost of this project is estimated at

Assistant for Plans and Development, NPIC

X1
APPROVED

ARTHUR C. LUNDAHL
Director, NPIC

15 APR 64
Date

Attachment: "A"

Distribution

Orig & 2 - LB/SS
1 - D/NPIC
1 - P&DS

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R & D CATALOG FORM

DATE

26 March 1965

1. PROJECT TITLE/CODE NAME

Reports on Research in Vision and Related Areas.

2. SHORT PROJECT DESCRIPTION

A program which would isolate sources and review research, selectively extracting data on vision and related physiological, psychometric criteria (Contd)

3. CONTRACTOR NAME

4. LOCATION OF CONTRACTOR

5. CLASS OF CONTRACTOR

Manufacturer

6. TYPE OF CONTRACT

Time & Materials

7. FUNDS

FY 19 \$

8. REQUISITION NO.

NA

9. BUDGET PROJECT NO.

NP-S-36

FY 1965

10. EFFECTIVE CONTRACT DATE (Begin - end)

1 June 1965 - 1 June 1966

11. SECURITY CLASS.

A.A. - Confidential

T.W. - Unclassified

12. RESPONSIBLE DIRECTORATE/OFFICE/PROJECT OFFICER TELEPHONE EXTENSION

DDI/NPIC/P&DS/

13. REQUIREMENT/AUTHORITY

The requirement for this mode of information is fundamental to fulfillment of our established functions. Specifically, physiological/psychometric criteria for image analysis have useful and direct application in the development of (Contd)

14. TYPE OF WORK TO BE DONE

Applied Research

15. CATEGORIES OF EFFORT

MAJOR CATEGORY

Special Techniques and Studies

SUB-CATEGORIES

Vision

Perception

Psychology

Physiology

16. END ITEM OR SERVICES FROM THIS CONTRACT/IMPROVEMENT OVER CURRENT SYSTEM, EQUIPMENT, ETC.

For each assigned task, a synopsis of relevant data which has been located, reviewed and related to our specific interests by the researchers will be submitted as a handbook with a supporting bibliography. Another benefit of the relationship will be a continuing lower level of effort which will maintain currency of (Contd)

17. SUPPORTING OR RELATED CONTRACTS (Agency & Other)/COORDINATION

This program has been coordinated with DD/S&T/OSI/LSD.

Since the program will provide up-to-date information on research findings in vision and related areas, the entire photographic Intelligence Community (Contd)

18. DESCRIPTION OF INTELLIGENCE REQUIREMENT AND DETAILED TECHNICAL DESCRIPTION OF PROJECT (Continue on additional page if required)

There is increasing interest and necessity in applying psychometric and physiological criteria from research in the field of human vision to the development of viewing concepts and equipment for photo exploitation.

We find ourselves at the point where we must begin to look in additional, unusual directions for improvements to the total viewing circumstance. The more obvious areas, such as resolution of film materials, quality of optics and illumination, (Contd)

19. APPROVED BY AND DATE

OFFICE

DEPUTY DIRECTOR

DDCI

(When Filled In)

NEW

| R & D CATALOG FORM | | DATE |
|---|--|--|
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| FY 19 \$ | NA | NP-S-36 |
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R & D CATALOG FORM (Continued)

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which could contribute to development of equipment and methods for P.I.

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quality equipment and improved methods for photo interpretation.

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information within stipulated areas of interest. The latter would involve spot reports on highly pertinent work which is uncovered as well as advisement of 1.) new company or university capabilities in relevant fields, 2.) applications of raw research findings, and 3.) apparent voids in research which may be considered as subjects for sponsored research.

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will benefit in the long range from any applications to equipment development and P.I. techniques.

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and advanced viewing concepts in general, have received prime attention, and continuing advancements in these technologies are being pushed.

There is recent interest in another realm, however, and funds have been apportioned to foster studies and applications concerned with the key element in photo exploitation -- the photo interpreter. For instance, "human factors" studies are beginning to yield significant, useable findings on performance as a function of resolution, stereo, and color. Studies are underway on the capacity of the human visual system for integrating multiple images to overcome the grain limits of a single photograph. The characteristic of light for photo interpretation is being evaluated with intentions of prescribing the "ideal" combined ambient and equipment source lighting for the major viewing modes.

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R & D CATALOG FORM (Continued)

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Concurrently, we must not only keep aware of all research being done but also individually work up basic backgrounds in these areas, particularly in vision. Because of the workload, there is not the time necessary to keep fully informed by sifting through the total amount of research being accomplished. Help is needed in uncovering the special work which is pertinent to, and has implications related to our development projects.

Much of the research is not Government-sponsored, and we therefore cannot rely upon established Government channels for information.

To date, any work which we have contracted in this area has always been prefaced by a compulsory literature search by the contractor performing the work. Although this will continue to be our policy, we cannot expect to objectively gather all the possible sources in the general area of vision, for instance, by this method. Also, the contractors are allowed the alternative of disputing the value of accomplished research which overlaps their proposed work, and this can lead to one-sided evaluations of the usefulness of a body of research about which we are not informed.

X1 The proposal is appealing because it will provide continuing surveys which will give us not only data and concepts for application but also a constantly updated idea of what basic areas remain untouched and untapped.

The contract would be on a time-and-materials basis and would commence with a delineated task for a summary of research in 1.) vision, 2.) fatigue, and 3.) illumination. The researchers would work in close liaison with an NPIC technical representative. The program will concern itself solely with those aspects of the investigative results which can contribute to the advancement of the image analysis process. The researchers (many of whom have been previously involved in national-level P.I.) will separate the useful from the non-useful data and will provide additional bases for evaluating the information.

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R & D CATALOG FORM (Continued)

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The document search and data compilation will consist of:

1. A review of periodicals, books, unpublished theses, and holdings of the Defense Documentation Center.
2. Follow-ups in the form of personal or mail contacts will be made on our approval with authors or industries whose work might have value for us.
3. A handbook and companion bibliography shall be provided and kept current: it will serve as a final project report.

Additional tasks will be decided on and will be assigned as needed.

X1 [] has been selected as a sole source because of the unique qual-
ification of the personnel who will be assigned to the project. []
X1 [] has its own photo interpretation capability and many of it
members are experienced photo interpreters, some of them having been
associated with the Agency.

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